

E. N. DICKERSON, Jr.
Electric Signaling Apparatus.

No. 230,696.

Patented Aug. 3, 1880.

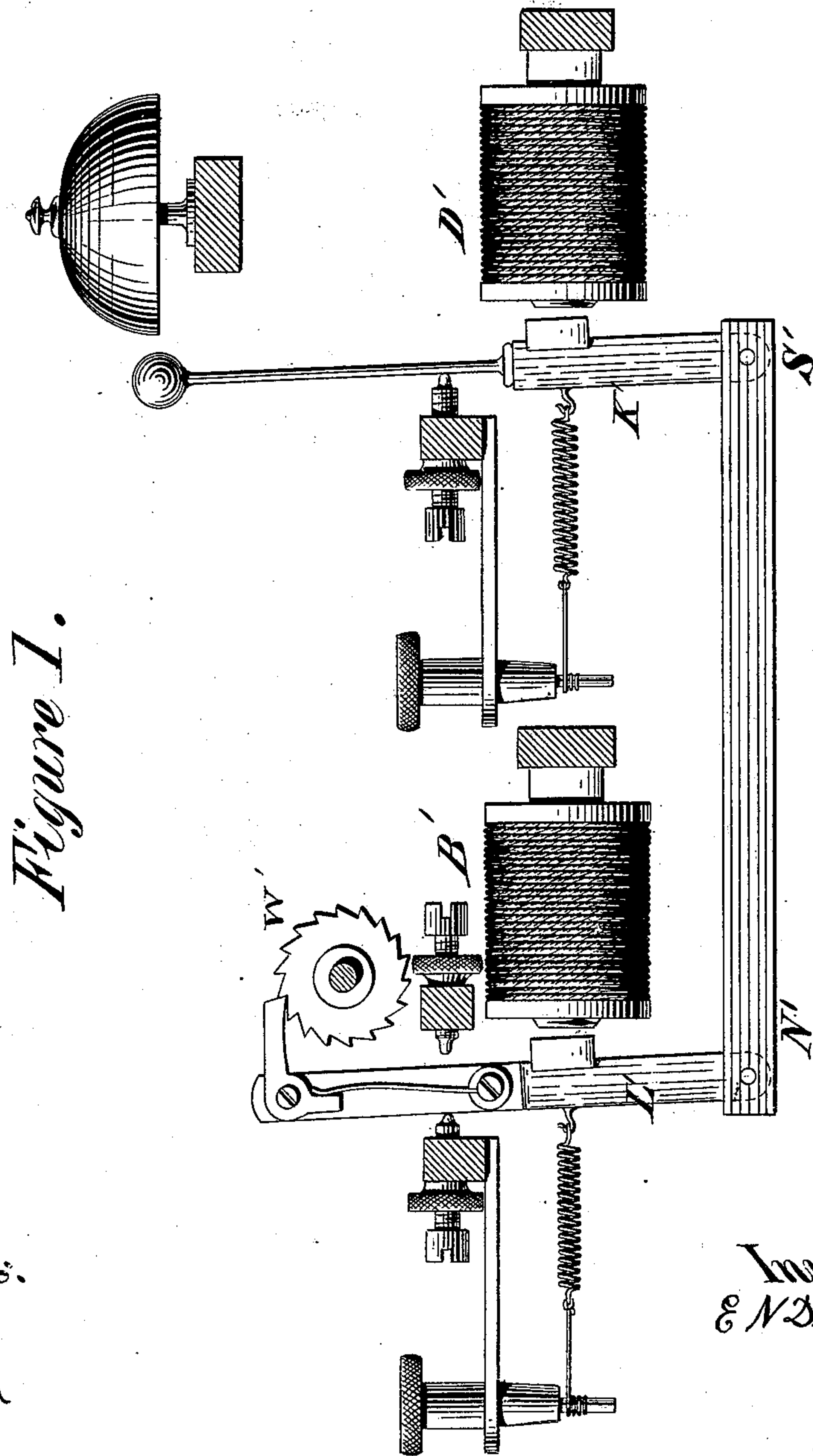


Figure 1.

Witnesses:
Geo. W. Miatt
S. F. Sullivan

Inventor:
E. N. Dickerson

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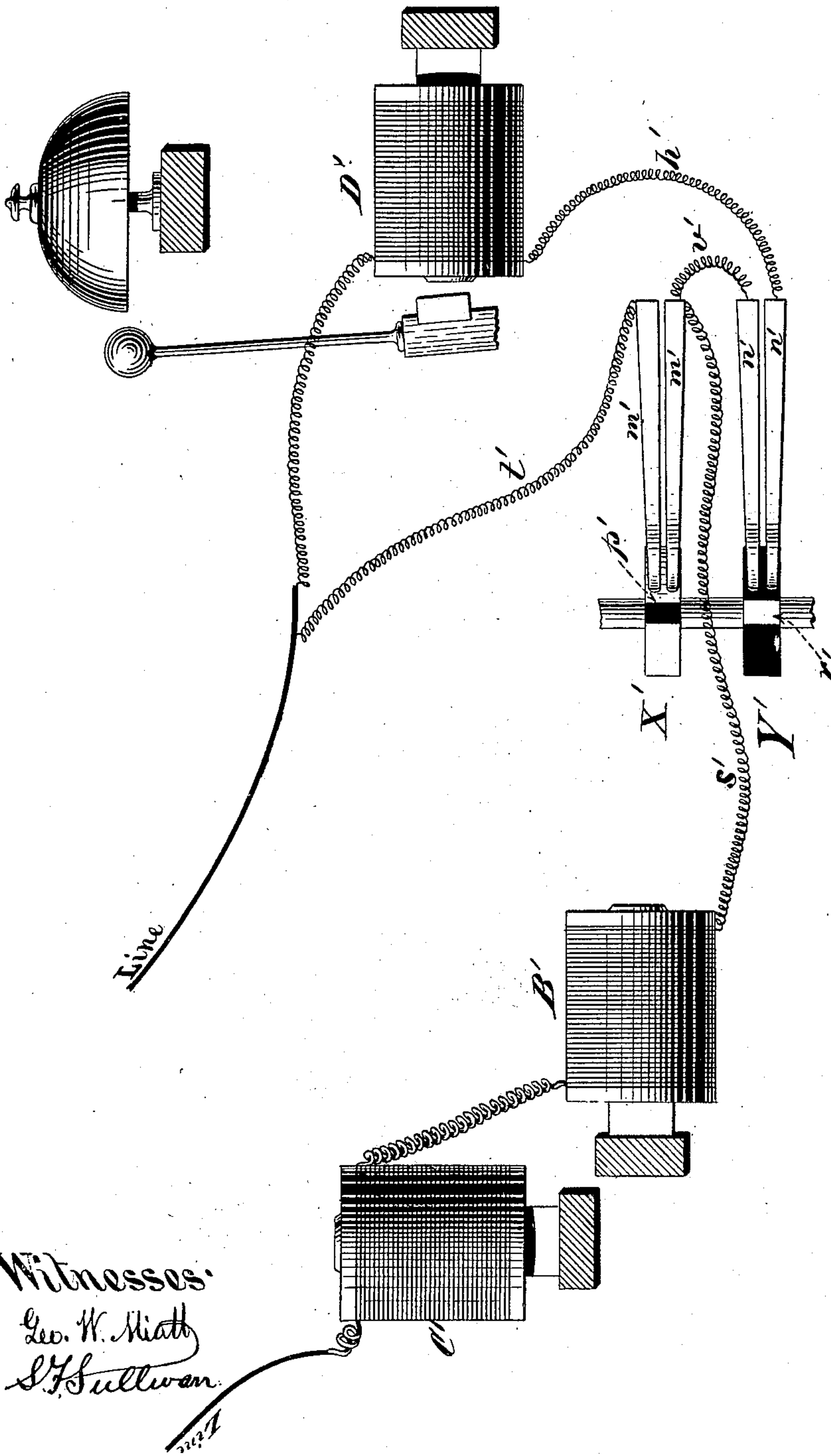


Figure 2.

Witnesses:
Geo. W. Mather
S. J. Sullivan

Inventor:
E. N. Dickerson

UNITED STATES PATENT OFFICE.

EDWARD N. DICKERSON, JR., OF NEW YORK, N. Y.

ELECTRIC SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 230,696, dated August 3, 1880.

Application filed November 11, 1878.

To all whom it may concern:

Be it known that I, EDWARD N. DICKERSON, Jr., of the city, county, and State of New York, have invented a new and useful Improvement in Electric Signaling Apparatus, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

My invention relates to that class of signaling apparatus by means of which a bell may be rung at any one of several offices situated on a single wire connected with a central controlling office.

I have heretofore patented such an apparatus on the 4th day of March, 1879, No. 212,792, and I do not propose in this patent to give a full description of such apparatus, of which this is a modification, and persons desiring fuller information as to the details of the apparatus and the objects to be accomplished by it are referred to the specification of that patent.

By my present apparatus I am enabled to ring a bell at will at any office on a line without disturbing any other office; and I accomplish this result by means of two batteries of different strengths and reversals of the current.

My invention will be readily understood from the accompanying drawings, in which—

Figure 1 represents a view of part of my apparatus, and Fig. 2 a detailed arrangement of the circuits and circuit-controlling mechanisms.

My signaling-office apparatus is provided with three magnets, C', B', and D'. The magnet B' operates a ratchet-wheel, W', by means of a pawl and ratchet, as shown. This ratchet-wheel controls the circuit-wheels X' Y'.

A spring (not shown) tends constantly to return the ratchet-wheel W' against the pawl. Its return is also prevented by another pawl (not shown) which is tripped by the magnet C', as described in the previous patent referred to.

The magnets B' D' are polarized magnets, as is shown in Fig. 1. The form there shown is rather used as an illustration than as the best form of polarized magnets. As shown, the coils are single coils and are similarly wound.

The armatures K' L' of the magnets D' B'

are attached at opposite ends of a permanent steel magnet, N' S', so that they possess a constant though different polarity. Suppose a positive current is sent on the line from the lesser battery, it will pass through magnets C', B', and D', (shown in Fig. 2,) but will affect B' only, thereby operating the circuit-wheel. One method of arranging the circuit-wheels is shown in Fig. 2.

The two wheels X' Y' are shown provided with springs m' n'. The wheel X' has an insulating-strip, p', and the wheel Y' has a conducting-strip, r'. The strip r' may be somewhat broader than the strip p'. These insulating-strips p' are arranged on that point of the circumference at which it is desired to summon the office.

Suppose the number of the office to be eight, then the less battery with its positive pole to line is closed and opened eight times, when the springs m' m' will rest on the insulating-strips p', and the springs n' n' will rest upon the conducting-strips r' r'. r' is made broader than p' to avoid the possibility of a break in the circuit. Before these strips have come under the springs the course of the current has been, wire s', springs m', wire t' to line; but when these strips are under the springs then the course is through wire s', wire v', springs n', and strip r' to bell D', to line. When the signaling apparatus has been brought to this position by impulses of the positive battery a negative current is sent on the line. This negative current will not affect the ratchet-wheel, but will affect the magnet D', whose armature has a polarity of the opposite kind.

The bell can be struck as many times as desired from the central office without interfering with any other bell or magnet.

The apparatus are returned to their normal positions by means of the trip-magnet and greater battery.

By putting additional insulating and conducting strips p' r' on wheels X' Y' at the normal point before the wheels have begun to move a key and telephone might be inserted in the wire h' without an additional circuit-wheel.

Instead of making the magnets B' D' polarized, I sometimes make the magnets B' C' po-

larized and operate the magnet E' by a current from a battery of too low intensity to operate the magnet B'. By operating the magnet B' with a positive current from the greater battery I bring the circuit-wheels, with their insulating and conducting strips, under the springs. Then I can strike the bell D' by a less current not sufficient to operate the magnet B'. I can then return the apparatus to its normal position by operating the magnet C' by a negative current, which effects a unison movement of all the instruments.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of two circuit-wheels moving together, one of which is provided with a conducting-face, excepting at one point of its circumference, the other of which is provided with an insulating-face, excepting at one point of its circumference, where a conducting-strip is placed, said conducting-strip being of the same width as or wider than the insulating-strip of the other circuit-wheel, for the purpose of shunting or switching a circuit by means of conductors resting upon the circumference of said circuit-wheels without breaking the continuity of the circuit, substantially as described.

2. In an electric signaling apparatus, the

combination of two polarized relays, one of which actuates a circuit-controlling mechanism, the other of which rings a bell, substantially as described.

3. In an electric signaling apparatus, the combination of a polarized magnet operating a circuit-controlling device, and another polarized magnet operating a bell, the circuit through the second polarized magnet being controlled by the circuit-controlling device operated by the first magnet, substantially as described.

4. In an apparatus designed to give a signal after a definite number of electric impulses, a circuit wheel or switch operated by a polarized magnet and a unison movement controlling and affecting such circuit wheel or switch and operated by another polarized magnet, substantially as and for the purposes described.

5. In combination with a permanent magnet, two armatures, one attached to either end of the same, and two coils operating said armatures, whereby a single steel magnet serves to magnetize the armatures of two polarized magnets, substantially as described.

E. N. DICKERSON, JR.

Witnesses:

S. F. SULLIVAN,
GEO. W. MIATT.